

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-46. Canceled.

47. (Currently Amended) A breathable gas mask arrangement, comprising:

a mask shell having a portion adapted to receive a supply of pressurized breathable gas and a user side;

a gusset portion having a first side attached to the user side of the shell and having a second side;

a cushion having a first portion constructed and arranged to attach to the second side of the gusset portion and a second portion constructed and arranged to contact a user's face in use and provide a seal between the mask arrangement and the user's face; and

a headgear constructed and arranged to attach the mask shell to the user;

wherein:

the gusset portion is constructed and arranged such that it can expand and contract to alter a distance between the mask shell and the cushion, an interior of the gusset portion being exposed to the supply of pressurized breathable gas and having a projected area on the user's face A_g which is greater than an area A_c of contact of the cushion with the user's face such that the supply of pressurized breathable gas acting on the area A_g provides a component of a contact force F_c of the cushion on the user's face, and a ratio of A_g/A_c is greater than 1.00, a change in total force of the mask on the face F_m being generally directly proportional at a given operating pressure to a displacement of the mask shell toward the user's face from an initial seal position

within a range of such mask shell displacement of about 6-25 mm, and
the projected area of the gusset is variable in accordance with alterations of the distance
between the mask shell and the cushion.

48. (Original) A breathable gas mask arrangement as in claim 47, wherein the mask shell displacement is in a range of about 10-20 mm.

49. (Original) A breathable gas mask arrangement as in claim 48, wherein the ratio of A_g/A_c is in a range of 1.50-4.00.

50. (Original) A breathable gas mask arrangement as in claim 49, wherein the gusset portion includes a single gusset having a flexible sidewall with a generally triangular cross-section when not exposed to the supply of pressurized breathable gas that balloons to a generally rounded cross-section when exposed to the supply of pressurized breathable gas.

51-74. Canceled

75. (Original) A mask assembly attachable to a user for receiving and supplying pressurized air to the user, comprising:

a cushion for contacting a user's face; and

a suspension mechanism axially movably supporting the cushion and exposed to the pressurized air to provide a first axial spring force to the cushion proportional to a pressure of the air, the first axial spring force being at least 30% greater than a second axial spring force on the

cushion due to the pressurized air acting directly on the cushion.

76. (Original) A mask assembly as in claim 75, wherein the first axial spring force is between 200% and 400% greater than the second axial spring force.

77. (Original) A mask assembly as in claim 76, wherein the suspension mechanism includes at least one gusset having a flexible sidewall with a generally triangular cross-section when not exposed to the pressurized air that balloons to a generally rounded cross-section when exposed to the pressurized air.

78. (Currently Amended) A mask assembly attachable to a user for receiving and supplying pressurized air to the user, comprising:

a mask shell;

a cushion for contacting a user's face and having a first projected area on the user's face;

and

a suspension mechanism attached to the mask shell axially movably supporting the cushion and having a second variable projected area on the user's face greater than the first projected area on the face by at least 30%.

79. (Original) A mask assembly as in claim 78, wherein the second projected area is between 200% and 400% greater than the first projected area.

80. (Original) A mask assembly as in claim 79, wherein the suspension mechanism includes at least one gusset having a flexible sidewall with a generally triangular cross-section when not exposed to the pressurized air that balloons to a generally rounded cross-section when exposed to the pressurized air.

81-124. Canceled.

125. (New) A breathable gas mask arrangement as in claim 49, wherein the ratio of A_g/A_c is greater than 1.6.

126. (New) A breathable gas mask arrangement as in claim 47, wherein the ratio of A_g/A_c is greater than 1.6.

127. (New) A breathable gas mask arrangement as in claim 47, wherein the gusset portion consists essentially of the single gusset.

128. (New) A breathable gas mask arrangement comprising:
a mask shell having a portion adapted to receive a supply of pressurized breathable gas and a user side;
a gusset portion having a first side attached to the user side of the shell and having a second side;

a cushion having a first portion attached to the second side of the gusset portion and a second portion constructed and arranged to contact a user's face in use and provide a seal between the mask arrangement and the user's face; and

headgear constructed and arranged to attach the mask shell to the user;

wherein the gusset portion includes a gusset having a flexible sidewall dimensioned and configured so that it transforms from a generally triangular cross-section when not exposed to the supply of pressurized breathable gas to a generally rounded cross-section when exposed to the supply of pressurized breathable gas.

129. (New) A breathable gas mask arrangement as claimed in claim 128, wherein the gusset portion defines a projected area that is variable in a radial direction according to 1) a distance between the mask shell and the cushion and/or 2) a pressure of the breathable gas over an operating pressure range.

130. (New) A breathable gas mask arrangement as claimed in claim 128, wherein the gusset portion comprises an elastic spring constant that is variable in accordance with (1) a pressure of the breathable gas over an operating pressure range and/or (2) a distance between the mask shell and the cushion.

131. (New) A breathable gas mask arrangement as claimed in claim 128, wherein a maximum width of the gusset portion over an operating pressure range is greater than a width of the mask shell.

132. (New) A breathable gas mask arrangement as claimed in claim 128, wherein the cushion is directly attached to an elastic sidewall of the gusset portion.

133. (New) A breathable gas mask arrangement as claimed in claim 128, wherein an elastic sidewall of the gusset portion extends outward from the cushion.

134. (New) A breathable gas mask arrangement as claimed in claim 128, wherein a component of contact force F_c provided by the supply of pressurized breathable gas acting on the gusset portion is sufficient to maintain the seal between the mask arrangement and the user's face without adjusting strap tension.

135. (New) A breathable gas mask arrangement as claimed in claim 134, wherein the strap tension upon initial set up of the mask arrangement does not exceed a value sufficient to bring the cushion in contact with the user's face.

136. (New) A breathable gas mask arrangement as claimed in claim 128, wherein the gusset portion consists essentially of the single gusset.

137. (New) A breathable gas mask arrangement, comprising:
a mask shell having a portion adapted to receive a supply of pressurized breathable gas and a user side;
a gusset portion having a first side attached to the user side of the shell and having a second side;

a cushion having a first portion attached to the second side of the gusset portion and a second portion constructed and arranged to contact a user's face in use and provide a seal between the mask arrangement and the user's face; and

wherein:

a distance between the mask shell and the cushion is variable, and

the gusset portion defines a projected area that is variable in dependence on the distance between the mask shell and the cushion.

138. (New) A breathable gas mask arrangement as claimed in claim 137, wherein the projected area is variable in a radial direction according to a pressure of the supplied breathable gas over an operating pressure range.

139. (New) A breathable gas mask arrangement as claimed in claim 137, wherein the gusset portion comprises an elastic spring constant that varies according to (1) a pressure of the supplied breathable gas over an operating pressure range and/or (2) the distance between the shell and the cushion.

140. (New) A breathable gas mask arrangement as claimed in claim 137, wherein a maximum width of the gusset portion over an operating pressure range is greater than a width of the mask shell.

141. (New) A breathable gas mask arrangement as claimed in claim 137, wherein the cushion is directly attached to an elastic sidewall of the gusset portion.

142. (New) A breathable gas mask arrangement as claimed in claim 137, wherein an elastic sidewall of the gusset portion extends outward from the cushion.

143. (New) A breathable gas mask arrangement as claimed in claim 137, further comprising headgear constructed to support the shell to the user, said headgear including at least one strap.

144. (New) A breathable gas mask arrangement as claimed in claim 143, wherein a component of contact force F_c provided by the supply of pressurized breathable gas acting on the projected area is sufficient to maintain the seal between the mask arrangement and the user's face without adjusting strap tension.

145. (New) A breathable gas mask arrangement as claimed in claim 144, wherein the strap tension upon initial set up of the mask arrangement does not exceed a value sufficient to bring the cushion in contact with the user's face.

146. (New) A breathable gas mask arrangement as claimed in claim 137, wherein the gusset portion consists essentially of a single gusset.